

Trend Study 6-9-01

Study site name: North Oakley Bench.

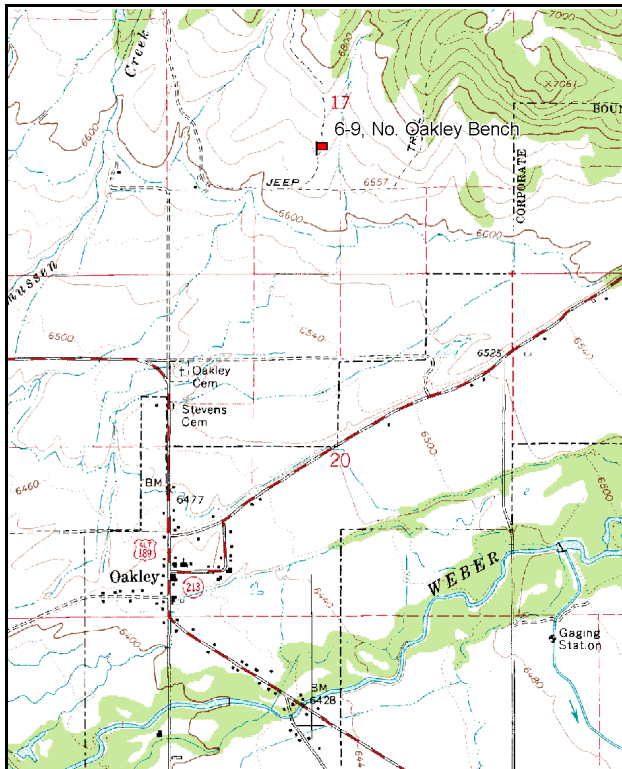
Vegetation type: Mountain brush.

Compass bearing: frequency baseline 180 degrees magnetic.

Frequency belt placement: Line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

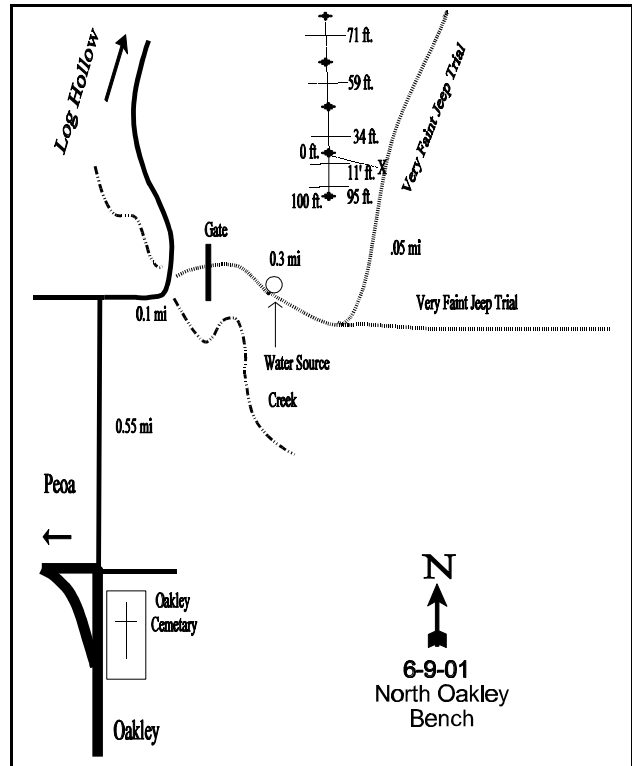
LOCATION DESCRIPTION

From the Oakley cemetery, just north of Oakley, proceed north 0.55 miles to an intersection and turn right. Proceed east 0.1 miles to a gate, pass through gate (private land; key needed) with creek on immediate right. Continue on a faint road for 0.3 miles to a fork. Turn left and proceed 0.05 miles to a witness post. From the witness post walk 7 paces at 248 degrees magnetic to the 0-foot baseline stake. The first 100 feet of the baseline runs 180 degrees magnetic. The remaining 300 feet run off the 0-foot baseline stake at 343 degrees magnetic.



Map Name: Kamas

Township 1S, Range 6E, Section 17



Diagrammatic Sketch

UTM 4508895 N 475394 E

DISCUSSION

Trend Study No. 6-9

The North Oakley Bench study lies on a relatively uniform mountain big sagebrush-grass type with a mixture of mountain brush. The study area is on a gently sloping, south-facing exposure. There is very little useful escape or thermal cover close to the study site. Elevation is approximately 6,600 feet. The area is privately owned, which means that the winter range is also used by domestic livestock most of the year. Judging from pellet group frequency and forage utilization, the level of use from both game and livestock varies from moderate to heavy. Pellet group quadrat frequency data indicates use by deer, elk, and cattle to be light to moderate in 1996 and 2001. A pellet group transect read on the site in 2001 estimated 29 elk days use/acre (73 edu/ha), 19 deer days use/acre (48 ddu/ha), and 22 cow days use/acre (54 cdu/ha). The range monitoring crew had to pass through a large group of cattle to reach the study in 2001. This area, because of its location, has high potential for residential homes. Ants were extremely abundant on the site in 2001.

Soils are alluvially deposited from sedimentary parent material. Soil depth should not be limiting, although a large amount of rock does exist within the profile. It could be classified as having very high amounts of cobblestone in the soil which probably has rather poor water holding capability in the upper horizon. Effective rooting depth was estimated at nearly 10 inches with a clay loam soil texture and a neutral soil reaction (7.0 pH). During the height of the drought (1987-1990), some trampling damage and soil compaction were evident from livestock in the past, but are less evident at this time. Protective ground cover is adequate to prevent most soil loss. Erosion is minimal, primarily because of the gentle terrain and high proportion of cover contributed by the herbaceous understory. A soil erosion condition class assessment completed in 2001 determined soils as stable.

The key preferred browse species are mountain big sagebrush, mountain snowberry, serviceberry, and antelope bitterbrush. The most abundant key browse is mountain big sagebrush which provided 36% and 38% of the browse cover in 1996 and 2001 respectively. When the study was initially established (1984), mountain big sagebrush was decadent in appearance and heavily browsed. On this site, sagebrush is in much poorer condition than it is over most of the surrounding area. Mountain big sagebrush is the shrub that has been most effected by the prolonged drought (late-1980's), especially on south and west aspects. Use on big sagebrush has been moderate to heavy in all years for this study. In 1996, 29% of the population were classified as dead. The proportion of the population classified as dead declined to 13% in 2001. It appears that the population has stabilized and is starting to recover with a decrease in the number of dead and decadent plants since the site was established. Recruitment from young sagebrush plants was much lower than the number of dead in 1996, but the ratio of young to dead improved in 2001.

Snowberry, serviceberry, and bitterbrush combine to produce about one-third of the browse cover in 1996 and 2001. Serviceberry and bitterbrush show moderate to heavy use, good vigor, and low decadence in 1996 and 2001. Snowberry displayed moderate to heavy use in 1996, but lighter use in 2001. Vigor has been normal and decadence low in both 1996 and 2001. Annual leader growth for mountain big sagebrush averaged less than 2 inches in 2001, while bitterbrush and serviceberry averaged 2 inches. Other browse sampled on the site include stickyleaf low rabbitbrush, broom snakeweed, gray horsebrush, and prickly pear cactus.

Grass and forb composition is remarkably diverse but includes many biennial and perennial weeds or species of poor forage value. Many also act as indicators of heavy livestock use. Thistle, aster, western yarrow, common dandelion, bulbous bluegrass, Letterman needlegrass, yellow salsify, flannel mullein, death camas, and wild onion are all examples of increaser species with heavy livestock use. Overall, sum of nested frequency for perennial grasses has slightly increased each year since 1984. Perennial forbs have decreased in sum of nested frequency each year since 1990. Grasses provide about 80% of the herbaceous cover and

nearly half of the total cover on the site in 1996 and 2001. There are over 50 species of herbs on the site, with most of them being classified as increaser species. Herbaceous species that are considered to have good value include bluebunch wheatgrass, crested wheatgrass, thickspike, and Sandberg bluegrass.

1984 APPARENT TREND ASSESSMENT

Soil, although subject to some trampling and compaction from livestock, is not seriously eroded. Ground cover appears to be adequate for protection and has shown no significant change over the past seven years. Trend appears to be stable. Vegetative trend is not clearly indicated by the data. However, there are a few clues, that when used with judgment, permit some preliminary assessments. While overall density of mountain big sagebrush has not definitely declined, there are some indicators pointing in that direction. Furthermore, it is more evident that age and form class structure has deteriorated. There is evidence that increaser grasses, forbs, and shrubs have increased in density and dominance. An overall assessment of vegetative trend from a big game standpoint would be stable to slightly down.

1990 TREND ASSESSMENT

It was noted in the 1984 report that this study was a rather poor site. There may be less sagebrush on this particular spot, but overall it appears representative of the south-facing slope of the foothills above Oakley. It is privately-owned land, managed for cattle grazing by the Oakley Cattlemen's Association. It is also used as winter range by elk and deer. As predicted, mountain big sagebrush had declined on this site and has decreased significantly in numbers between 1984 and 1990. The density plot data indicates that most of the decrease came in the mature age class. Currently, there are abundant seedling and young sagebrush. A majority of the sagebrush are lightly hedged and have good vigor and fair growth in 1990. The other browse on the site have stable or increased numbers. The only shrubs to be uniformly and heavily utilized are the large bitterbrush plants. They are browsed year-round, but still display good vigor. Low rabbitbrush increased on the density plots due to the addition of a large number of young in the population. It is the most numerous browse species.

The seeded and native grasses had a high nested frequency of occurrence. The nested frequency of crested wheatgrass increased significantly, while bluebunch wheatgrass displays a large decrease in frequency. There has also been a shift in forb composition, but the most common species remain hoary aster, thistle, and yarrow, all increasers indicating excessive grazing. Ants, often associated with overgrazing and a large amount of bare soil, are very common on the site. Many of these ants attend aphids that have infested the sagebrush. The site has adequate ground cover and soil protection, but does have an increased percentage of bare soil. However, erosion is minimal on the site.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - slightly up (4)

1996 TREND ASSESSMENT

The trend for soil is slightly upward with a significant decrease in percent bare ground. Furthermore, 63% of the vegetative cover is contributed by herbaceous species which are better at protecting the soil than browse cover. The trend for browse, especially the preferred species, is slightly up with decreases in percent decadency for all species, and an increase in density for mountain big sagebrush which provides 36% of the total browse cover. The nested frequency value for the perennial grasses has increased, but that of the perennial forbs has decreased. However, forbs contribute only 18% of the total herbaceous cover. The

biggest problem for this site is that the majority of the cover for the herbaceous species is contributed by increasers due to excessive grazing. The composition is not ideal for a stable plant community. Trend for herbaceous understory is stable, but of poor composition.

TREND ASSESSMENT

soil - slightly up (4)

browse - slightly up (4)

herbaceous understory - stable, but poor composition with too many increasers (3)

2001 TREND ASSESSMENT

Trend for soil is stable. Vegetation and litter cover remain abundant and well disbursed over the site. The proportion of the surface represented by bare ground remained stable. Trend for browse is stable. The population of mountain big sagebrush shows slight increases in those classified with poor vigor and decadence, but the proportion of the population in the dead age class declined considerably. The population appears to be stabilizing with the mature age class making up three-fourths of the population. Serviceberry, bitterbrush, and snowberry all show stable densities, normal vigor, and low decadence. Trend for the herbaceous understory is stable. Sum of nested frequency for perennial grasses slightly increased, while sum of nested frequency for perennial forbs slightly decreased. Because grasses provide the majority of the forb cover, trend is considered stable overall. The understory remains in poor condition however, as it is dominated by increaser species.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - stable (3)

HERBACEOUS TRENDS --

Herd unit 06 , Study no: 9

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
G	Agropyron cristatum	_b 132	_c 216	_a 71	_a 82	49	80	22	26	2.39	4.20
G	Agropyron dasystachyum	_b 80	_a 17	_b 72	_c 124	29	6	30	46	.74	2.00
G	Agropyron intermedium	-	-	2	-	-	-	1	-	.15	-
G	Agropyron spicatum	_b 47	_a 14	_b 68	_a 15	18	7	28	5	1.48	.60
G	Bromus brizaeformis (a)	-	-	-	3	-	-	-	1	-	.03
G	Bromus inermis	-	13	7	6	-	4	3	2	.18	.18
G	Bromus tectorum (a)	-	-	18	18	-	-	6	7	.22	.06
G	Koeleria cristata	_a -	_a -	_{ab} 4	_b 16	-	-	2	6	.03	.39
G	Poa bulbosa	_a -	_a -	_b 135	_c 230	-	-	44	73	6.46	11.66
G	Poa fendleriana	_a -	_{ab} 4	_{ab} 8	_b 10	-	2	3	6	.21	.18
G	Poa pratensis	_a 116	_b 182	_b 182	_a 81	45	63	59	29	4.97	2.01
G	Poa secunda	_a 10	_a 25	_a 17	_b 58	4	12	6	26	.42	.89
G	Sitanion hystrix	-	-	-	5	-	-	-	3	-	.18

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
G	<i>Stipa columbiana</i>	_b 133	_c 221	_a 18	_a 6	52	80	6	3	.27	.06
G	<i>Stipa comata</i>	-	-	-	6	-	-	-	3	-	.06
G	<i>Stipa lettermani</i>	_a -	_a -	_b 165	_b 176	-	-	58	61	5.61	3.22
Total for Annual Grasses		0	0	18	21	0	0	6	8	0.22	0.09
Total for Perennial Grasses		518	692	749	815	197	254	262	289	22.95	25.68
Total for Grasses		518	692	767	836	197	254	268	297	23.18	25.77
F	<i>Achillea millefolium</i>	52	46	30	30	19	22	13	14	.29	.46
F	<i>Agoseris glauca</i>	-	-	7	-	-	-	2	-	.01	-
F	<i>Allium acuminatum</i>	_a 29	_a 6	_a 14	_b 42	12	3	7	21	.08	.13
F	<i>Alyssum alyssoides</i> (a)	-	-	_a 6	_b 29	-	-	2	14	.01	.14
F	<i>Arabis</i> spp.	_a -	_b 13	_{ab} 7	_a -	-	5	3	-	.01	-
F	<i>Astragalus beckwithii</i>	-	-	2	1	-	-	1	1	.03	.00
F	<i>Aster chilensis</i>	_a 9	_b 34	_a 9	_a 13	5	13	3	6	.18	.42
F	<i>Astragalus convallarius</i>	_a 13	_a 12	_a 5	_b 34	6	7	2	16	.04	.60
F	<i>Balsamorhiza sagittata</i>	-	-	-	-	-	-	-	-	-	.00
F	<i>Calochortus nuttallii</i>	3	11	13	17	2	7	8	7	.04	.20
F	<i>Chenopodium fremontii</i> (a)	-	-	-	3	-	-	-	1	-	.00
F	<i>Cirsium undulatum</i>	_c 137	_b 73	_a 38	_a 24	63	41	23	15	.61	.55
F	<i>Collomia linearis</i> (a)	-	-	-	26	-	-	-	13	-	.06
F	<i>Comandra pallida</i>	_a 15	_a 22	_b 50	_a 30	8	10	26	16	.38	.15
F	<i>Collinsia parviflora</i> (a)	-	-	_a -	_b 35	-	-	-	13	-	.06
F	<i>Crepis acuminata</i>	6	-	-	-	3	-	-	-	-	-
F	Cruciferae	-	2	-	-	-	1	-	-	-	-
F	<i>Cryptantha</i> spp.	4	-	-	-	2	-	-	-	-	-
F	<i>Cynoglossum officinale</i>	-	2	2	-	-	1	1	-	.03	-
F	<i>Delphinium nuttallianum</i>	-	-	3	-	-	-	1	-	.00	-
F	<i>Epilobium brachycarpum</i> (a)	-	-	_a -	_b 12	-	-	-	6	-	.05
F	<i>Erigeron pumilus</i>	_a 2	_b 34	_b 41	_b 29	1	17	21	14	.30	.09
F	<i>Eriogonum racemosum</i>	4	15	5	3	3	8	2	2	.01	.01
F	<i>Eriogonum umbellatum</i>	-	-	3	-	-	-	3	-	.01	-
F	<i>Gayophytum ramosissimum</i> (a)	-	-	_b 15	_a -	-	-	6	-	.05	-
F	<i>Gilia aggregata</i>	-	2	1	-	-	2	1	-	.03	-
F	<i>Hackelia patens</i>	-	-	6	1	-	-	2	1	.30	.00
F	<i>Holosteum umbellatum</i> (a)	-	-	_a 6	_b 40	-	-	2	13	.01	.21
F	<i>Lactuca serriola</i>	-	3	-	-	-	1	-	-	-	-

T y p e	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
F	Lithospermum ruderae	-	2	4	3	-	1	2	1	.03	.03
F	Lupinus argenteus	_a 2	_a 4	_b 22	_c 40	2	2	10	20	.74	1.28
F	Machaeranthera canescens	_{ab} 70	_c 128	_b 74	_a 19	31	57	38	10	.51	.12
F	Machaeranthera grindelioides	-	-	-	1	-	-	-	1	-	.00
F	Microsteris gracilis (a)	-	-	_a -	_b 68	-	-	-	27	-	.28
F	Navarretia intertexta (a)	-	-	-	3	-	-	-	1	-	.00
F	Orthocarpus tolmiei (a)	-	-	_a 5	_b 30	-	-	2	12	.06	.35
F	Penstemon spp.	-	2	-	-	-	1	-	-	-	-
F	Phlox longifolia	_a -	_b 22	_b 10	_b 15	-	11	5	8	.05	.04
F	Polygonum douglasii (a)	-	-	_b 81	_a 28	-	-	34	12	.22	.08
F	Ranunculus testiculatus (a)	-	-	_a 3	_b 22	-	-	1	9	.00	.09
F	Senecio integerrimus	_a -	_a -	_a -	_b 16	-	-	-	9	-	.15
F	Senecio multilobatus	3	-	-	4	1	-	-	2	-	.01
F	Sphaeralcea coccinea	_a 4	_b 18	_{ab} 14	_{ab} 8	2	8	5	3	.31	.06
F	Taraxacum officinale	_a 6	_b 34	_{ab} 26	_{ab} 32	3	16	12	18	.21	.26
F	Tragopogon dubius	_a 7	_b 56	_a 25	_a 19	4	28	14	11	.27	.24
F	Unknown forb-annual (a)	-	-	_b 12	_a -	-	-	5	-	.07	-
F	Verbascum thapsus	11	9	2	-	4	4	1	-	.03	-
F	Vicia americana	_a -	_b 15	_a -	_a -	-	6	-	-	-	-
F	Viguiera multiflora	1	-	-	-	1	-	-	-	-	-
F	Zigadenus paniculatus	-	3	1	8	-	1	1	5	.03	.15
Total for Annual Forbs		0	0	128	296	0	0	52	121	0.43	1.37
Total for Perennial Forbs		378	568	414	389	172	273	207	201	4.59	5.02
Total for Forbs		378	568	542	685	172	273	259	322	5.02	6.40

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 06 , Study no: 9

T y p e	Species	Strip Frequency		Average Cover %	
		'96	'01	'96	'01
B	Amelanchier alnifolia	13	13	.97	1.42
B	Artemisia tridentata vaseyana	55	43	5.86	9.43
B	Chrysothamnus viscidiflorus viscidiflorus	85	86	3.79	6.31
B	Mahonia repens	21	17	.93	.22
B	Opuntia spp.	4	4	.91	.91
B	Purshia tridentata	11	16	.30	.89
B	Symphoricarpos oreophilus	28	25	3.65	5.55
B	Tetradymia canescens	3	2	-	.38
Total for Browse		220	206	16.44	25.13

BASIC COVER --

Herd unit 06 , Study no: 9

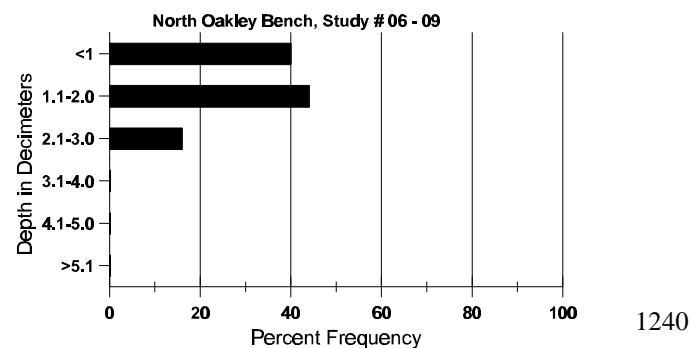
Cover Type	Nested Frequency		Average Cover %			
	'96	'01	'84	'90	'96	'01
Vegetation	376	374	7.75	12.00	46.85	55.62
Rock	62	52	2.00	1.50	1.37	1.79
Pavement	152	67	.25	1.50	.91	.32
Litter	389	357	60.50	47.00	39.72	38.70
Cryptogams	70	110	1.25	4.25	.97	2.75
Bare Ground	296	274	28.25	33.75	21.67	21.97

SOIL ANALYSIS DATA --

Herd Unit 06, Study no: 09, North Oakley Bench

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
9.6	64.4 (19.7)	7.0	38.9	33.1	28.0	4.2	43.8	217.6	.7

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 06 , Study no: 9

Type	Quadrat Frequency		Pellet Transect	
	'96	'01	Pellet Groups per Acre	Days Use per Acre (ha)
			'01	'01
Sheep	1	-	-	-
Rabbit	3	3	9	N/A
Horse	-	3	-	-
Elk	5	21	383	29 (73)
Deer	15	11	252	19 (48)
Cattle	6	12	261	22 (54)

BROWSE CHARACTERISTICS --

Herd unit 06 , Study no: 9

A Y G R E		Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Amelanchier alnifolia																	
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	90	-	-	-	1	-	-	-	-	-	1	-	-	-	66		1
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	90	-	2	-	-	-	-	-	-	-	1	-	1	-	133		2
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	90	-	-	1	-	-	-	-	-	-	1	-	-	-	66	25 31	1
	96	-	4	7	2	-	-	-	-	-	13	-	-	-	260	25 30	13
	01	-	3	2	-	-	6	-	-	-	11	-	-	-	220	28 34	11
D	84	-	1	-	-	-	-	-	-	-	1	-	-	-	66		1
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	01	-	-	1	-	-	1	-	-	-	2	-	-	-	40		2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
		'84			100%			00%			+67%						
		'90			67%			33%			+29%						
		'96			29%			50%			00%						
		'01			23%			77%			- 7%						
Total Plants/Acre (excluding Dead & Seedlings)												'84	66	Dec:	100%		
												'90	199		0%		
												'96	280		0%		
												'01	260		15%		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Artemisia tridentata vaseyana																	
S	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1
	90	37	-	-	-	-	-	-	-	-	37	-	-	-	2466		37
	96	6	1	-	-	-	-	-	-	-	7	-	-	-	140		7
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2
Y	84	10	5	-	-	-	-	-	-	-	15	-	-	-	1000		15
	90	6	-	1	1	-	-	-	-	-	8	-	-	-	533		8
	96	14	5	-	-	-	-	-	-	-	19	-	-	-	380		19
	01	5	4	-	-	-	-	-	-	-	8	1	-	-	180		9
M	84	4	16	1	-	-	-	-	-	-	21	-	-	-	1400	13 7	21
	90	6	5	-	1	-	-	-	-	-	9	2	1	-	800	14 17	12
	96	22	39	19	-	-	-	-	-	-	73	-	7	-	1600	20 28	80
	01	16	29	13	-	-	3	-	-	-	54	1	6	-	1220	22 35	61
D	84	-	10	9	-	-	-	-	-	-	16	-	3	-	1266		19
	90	1	1	-	-	1	-	-	-	-	2	1	-	-	200		3
	96	-	6	4	-	-	-	-	-	-	7	-	3	-	200		10
	01	4	4	2	-	-	-	-	-	-	3	1	-	6	200		10
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	880		44
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	240		12
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'84		56%			18%			05%			-58%						
'90		30%			04%			04%			+30%						
'96		46%			21%			09%			-27%						
'01		46%			23%			15%									
Total Plants/Acre (excluding Dead & Seedlings)												'84	3666	Dec:	35%		
												'90	1533		13%		
												'96	2180		9%		
												'01	1600		13%		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus viscidiflorus viscidiflorus																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	17	-	-	-	-	-	-	-	-	17	-	-	-	1133			17
	96	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	22	4	-	-	-	-	-	-	-	25	-	1	-	1733			26
	96	38	-	-	-	-	-	-	-	-	38	-	-	-	760			38
	01	32	-	-	-	-	-	-	-	-	30	2	-	-	640			32
M	84	77	-	-	-	-	-	-	-	-	77	-	-	-	5133	16	15	77
	90	57	29	7	5	-	-	-	-	-	77	-	21	-	6533	9	10	98
	96	276	-	-	14	-	-	-	-	-	290	-	-	-	5800	11	16	290
	01	326	8	-	4	-	-	1	-	-	323	16	-	-	6780	9	16	339
D	84	27	-	-	-	-	-	-	-	-	27	-	-	-	1800		27	
	90	17	7	-	1	-	-	-	-	-	15	-	7	3	1666			25
	96	4	1	-	-	-	-	-	-	-	5	-	-	-	100			5
	01	4	-	-	-	-	-	-	-	-	-	3	-	1	80			4
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%			+30%							
'90		27%			05%			21%			-33%							
'96		.30%			00%			00%			+11%							
'01		02%			00%			.26%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	6933	Dec:	26%			
												'90	9932		17%			
												'96	6660		2%			
												'01	7500		1%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Mahonia repens																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	16	-	-	-	-	-	-	-	-	-	-	-	-	320		16	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	90	18	2	-	-	-	-	-	-	-	20	-	-	-	1333		20	
	96	252	-	-	-	-	-	-	-	-	252	-	-	-	5040		252	
	01	22	-	-	-	-	-	-	-	-	22	-	-	-	440		22	
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	90	1	2	-	6	-	-	-	-	-	9	-	-	-	600	3	9	
	96	65	-	-	-	-	-	-	-	-	65	-	-	-	1300	3	65	
	01	176	-	-	-	-	-	-	-	-	176	-	-	-	3520	2	176	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%			+97%							
'90		14%			00%			00%			+70%							
'96		00%			00%			00%			-38%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	66	Dec:	-			
												'90	1933		-			
												'96	6340		-			
												'01	3960		-			
Opuntia spp.																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	96	4	-	-	-	-	-	-	-	-	4	-	-	-	80	7	4	
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60	4	3	
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%			+ 0%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	0%			
												'90	0		0%			
												'96	80		0%			
												'01	80		25%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Purshia tridentata																		
Y	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	90	-	-	1	-	-	-	-	-	-	1	-	-	-	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
M	84	-	2	1	-	-	-	-	-	-	3	-	-	-	200	30	34	3
	90	-	-	3	-	-	-	-	-	-	3	-	-	-	200	22	41	3
	96	-	1	7	-	4	1	-	-	-	13	-	-	-	260	14	40	13
	01	-	4	2	-	1	6	-	-	-	13	-	-	-	260	11	36	13
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	-	-	-	-	-	1	-	-	-	1	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		50%			25%			00%			+ 0%							
'90		00%			100%			00%			- 2%							
'96		38%			62%			00%			+19%							
'01		31%			56%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	266	Dec:	0%			
												'90	266		0%			
												'96	260		0%			
												'01	320		6%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Symphoricarpos oreophilus																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	4	-	-	-	-	-	-	-	-	4	-	-	-	80		4	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	2	-	-	-	-	-	-	-	-	2	-	-	-	133		2	
	96	6	-	1	-	-	-	-	-	-	7	-	-	-	140		7	
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
M	84	1	2	-	-	-	-	-	-	-	3	-	-	-	200	11	15	3
	90	-	3	1	-	-	-	-	-	-	4	-	-	-	266	12	14	4
	96	11	19	12	1	-	-	-	-	-	38	5	-	-	860	24	42	43
	01	18	2	1	3	-	-	-	-	-	24	-	-	-	480	29	49	24
D	84	-	1	-	-	-	-	-	-	-	1	-	-	-	66		1	
	90	-	1	-	-	-	-	-	-	-	-	-	-	1	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	80		4	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		Moderate Use			Heavy Use			Poor Vigor						%Change				
'84		75%			00%			00%						+43%				
'90		57%			14%			14%						+54%				
'96		38%			26%			00%						-44%				
'01		07%			04%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	266	Dec:	25%			
												'90	465		14%			
												'96	1000		0%			
												'01	560		4%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Tetradymia canescens																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
Y	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	1	-	-	-	-	-	-	-	1	-	-	-	20		1	
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	90	-	1	-	-	-	-	-	-	-	1	-	-	-	66	13	1	
	96	-	2	-	-	-	-	-	-	-	2	-	-	-	40	11	2	
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20	9	1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%			+ 0%							
'90		100%			00%			00%			- 9%							
'96		100%			00%			00%			+ 0%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	66	Dec:	-			
												'90	66		-			
												'96	60		-			
												'01	60		-			